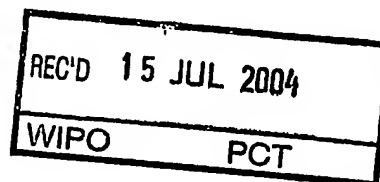


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## CERTIFICATE

This certificate is issued in support of an application for Patent registration in a country outside New Zealand pursuant to the Patents Act 1953 and the Regulations thereunder.

I hereby certify that annexed is a true copy of the Provisional Specification as filed on 18 June 2003 with an application for Letters Patent number 526572 made by DERRICK ANTHONY RHODES.

Dated 23 June 2004.

A handwritten signature in cursive script, reading "Neville Harris".

Neville Harris  
Commissioner of Patents, Trade Marks and Designs



526572

Patents Form No. 4

Our Ref: MK504353

Patents Act 1953

**PROVISIONAL SPECIFICATION**

**A UTILITY PORTAL**

I, **DERRICK ANTHONY RHODES**, a citizen of New Zealand, of 59 Francis Street, Grey Lynn, Auckland New Zealand do hereby declare this invention to be described in the following statement:

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## A UTILITY PORTAL

### Technical Field of the Invention

The invention broadly relates to roading and highway fixtures. More specifically, the invention relates to an improved road utility portal and/or access hole fitting. The invention also provides a method of elevating such utility portals.

### Background of the Invention

Road utility portals which include manhole portals, fire hydrants and water and power utility portals are a common feature of most urban roads, footpaths, motorways and highways. These utility portals provide access to power cables, water and drainage pipes which may lie beneath a road surface.

Figures 1A and 1B illustrate a plan view of a commonly used utility portal 1. The portal 1 includes a frame 2 and a cover 3. The frame 2 is substantially round and/or oval in shape and includes a base plate 4 and substantially upwardly extending sides 5. The upwardly sides 5 extend from an internal or central surface 6 of the base plate 4. The cover 3 rests on an internal ledge 7 of the base plate 4. The frame 2 further includes side supports 8 which form a wedge between the sides 5 and the base plate 4 to provide additional support for the sides 5.

Although Figure 1 shows the portal 1 as substantially round, this design of portal is common for most square and rectangular portals 1. A portal 1 for a manhole is normally engaged with a concrete top (not shown) which in turn is positioned over a manhole shaft.

This type of portal 1 has a number of disadvantages. The frame 2 is secured by bolts, screws, adhesive or the like to the concrete top. Road seal which includes concrete, tar seal and/or asphalt then covers the concrete top and base plate 4 and may be used to secure the frame 2 in place. The concrete, tar seal and/or asphalt is used to cover the outer edges of the base plate 4 of the frame 2 and the wedge 8. This secures the frame 2 in place and substantially aligns the road surface with the sides 5 and upper surface of the cover 3.

This construction makes it difficult later to remove, replace or realign the portal 1 with the road surface without first grinding the road surface down which covers the base plate 4 of the frame 2 to remove concrete and expose the base plate 4.

This is particularly problematic when a road is to be resealed. As it is difficult and time consuming to lift a frame 2, it has become common if possible to leave the portal 1 in place and to reseal the road around the portal 1. This can leave a dip or hollow in the road surface at the portal 1, as the portal 1 sits at a substantially lower horizontal level to the road surface. This can cause an unpleasant bump to drivers who run over the portal 1 and in some cases may even be dangerous for road users.

A number of manufacturers have provided base panel which are adapted to engage on the under surface of the portal 1 and raise the portal by a specific level. The panels have been designed particularly for use with large portals such as manholes.

However, the panels may only be produced in limited sizes (manhole portal sizes) for economic reasons. The road surface covering the base plate 4 must also be ground down before the portal can be raised to the new road level and the panel inserted under the base plate 4. This is time consuming and expensive. For these reasons it has become common to delay raising manhole portals, for example, until the dip in the road surface becomes too great.

Ring extensions which engage with the sides 5 of the portal may also be available to raise the height of the cover 3 to the road surface level. However, ring extensions are again only produced for large portals 1 such as manhole portals and are available only in sizes that raise a manhole portal by 50 millimetres or more. This is because ring extensions which are less than 50 millimetres are uneconomic to use and to manufacture.

### **Object of the Invention**

It is the object of this invention to overcome or ameliorate at least one of the disadvantages of present road portals and/or to at least provide the public with a useful choice.

Other objects of the invention will become apparent from the following description.

### **Statements of Invention**

5 In accordance with one aspect of this invention, there is provided a frame adapted to support a cover, said frame including a base plate and sides which extend substantially orthogonally from outer edges of the base plate and which are adapted in use to allow the frame to be raised from a first position to a second position substantially without disturbance of the surface adjacent to the frame.

10 Preferably, the sides extend substantially upwardly from the base plate to such a height so as to substantially align with an upper surface of the cover which may be engaged or engageable with the manhole frame.

15 Preferably, the sides extend substantially orthogonally from the outer edges of an oval base plate.

Preferably, the frame is made from rigid or firm material.

20 Preferably, the frame may be provided in a substantially rectangular, square or triangular configuration.

Preferably, the frame is made from metal or firm plastics.

25 In accordance with another aspect of this invention, there is provided a portal, including a frame and a cover, wherein the frame includes sides which extend substantially orthogonally from outer edges of the frame, said frame engageable with the cover and adapted in use to be raised from a first position to a second position substantially without disturbance of the surface adjacent to the frame.

30 Preferably, the frame is of a size to allow a human to substantially pass through the frame.

In accordance with a further aspect of this invention, there is provided a frame substantially as herein described with reference to any one of Figures 2 and 3.

35

In accordance with a further aspect of this invention, there is provided a portal substantially as herein described with reference to Figures 2 and 3.

### **Brief Description of the Figures**

The invention will now be described by way of example and with reference to the Figures in which:

Figure 1A illustrates a plan view of a prior art portal;

Figure 1B illustrates a cross-section view of the prior art portal;

Figure 2A illustrates a plan view of a frame of one preferred embodiment of this present invention;

Figure 2B illustrates a cross-section view of a portal, including the frame of Figure 2A, of one preferred embodiment of this invention;

Figure 3A illustrates a plan view of a frame of an alternative preferred embodiment of the invention; and

Figure 3B illustrates a side view of the portal of Figure 3A.

### **Description of the Invention**

The invention will now be described with reference to one preferred embodiment.

As illustrated in Figures 2A and 2B, the invention provides a utility portal 10. The utility portal 10 is adapted in use for positioning on any road, highway, motorway, footpath or like mounting surfaces. The portal 10 may have a variety of applications. For example, the portal 10 may be provided in a size that the portal 10 may be used for a manhole portal. Alternatively, the portal 10 may be prepared in a size so that it can be used to cover fire hydrants or power meters in a road or footpath. It is also envisaged that the portal 10 could be provided in a form to allow it to engage with a wall surface to provide access to power cables or the like.

It will therefore be appreciated by those skilled in the art that the portal 10 may be provided in a variety of sizes and of a variety of materials depending on a particular application for the portal 10.

The portal 10 may include a frame 11 and cover 12.

Figure 2A illustrates a plan view of the frame 11. The frame 11 may include a base plate 13 and sides 14. The base plate 13 is adapted in use to engage the frame 11 to a mounting surface. If the portal 10 is adapted for use as a manhole portal, the base plate 13 may be adapted to engage with a substantially horizontal concrete top which covers a substantially vertical manhole shaft.

Preferably, the base plate 13 may be formed as a flat panel. This broadens the number of possible mounting surfaces to which the frame 11 may be engaged with. However, it is envisaged that the base plate 13 may be adapted and/or modified to engage with a mounting surface which is not necessarily flat and/or is sloped, for example.

The base plate 13 may be also adapted to engage with the cover 12 as illustrated in Figure 2B. Preferably, the base plate 13 provides a ledge 20 adapted to support the cover 12 when the cover 12 is supported by the frame 11. The ledge 20 may also be useful in fastening the portal 10 to the mounting surface. For example, the portal 10 may include apertures evenly or unevenly spaced around the ledge 20 which may be used to fasten the frame 11 to the mounting surface. For example, bolts, screws or rods could be used to secure the frame 11 to the mounting surface as will be described below.

As mentioned, the frame 11 includes sides 14 which are illustrated with reference to a cross-section view of the portal 10 of Figure 2B.

The sides 14 extend substantially upwardly and/or substantially orthogonally from outer edges 21 of the base plate 13. Preferably, the sides 14 are substantially parallel on opposite sides of the frame 11. Furthermore, the sides are substantially perpendicular to the base plate in Figure 2B. The substantially orthogonal sides 14 are adapted to allow the frame 11 to be raised from a first position to a second position without requiring the surface surrounding and/or adjacent the frame 11 to be substantially disturbed before the

portal 10 is raised. For example, to move a current portal (as illustrated in Figures 1A and 1B) requires the ground around the frame 11 to be first removed to expose the base plate 13. In the preferred embodiment the base plate 13 does not extend substantially outwardly and beyond the sides 14. This means the frame 11 may be raised or removed easily and effectively without substantial excavation of the frame 11 or the surrounding surface of the road, for example.

It should be understood that it is not essential that the inner walls 15 of the sides 14 are substantially parallel as illustrated in Figures 2 and 3. In an alternative embodiment, the inner walls 15 may be tapered and/or grooved to the particular requirement of a cover 12 which is to be engaged with frame 11.

The sides 14 may extend substantially upwardly from the base plate 13 by any desired height. However, preferably the sides 14 extend to a height so as to align with a top surface 16 of the cover 12, when the cover 12 is supported by the frame 11.

The portal 10 of Figures 2A and 2B may be substantially oval or circular. However, it will be understood that this is not essential to the operation of the invention. Figure 3 illustrates a portal 10 which is substantially rectangular.

Figure 3A illustrates a plan view of a frame 11 of an alternative embodiment. The frame 11 includes a base plate 13 and sides 14. The sides 14 extend substantially upwardly from the base plate 13. Preferably, the base plate 13 includes a ledge 20 which is adapted in use to support a cover 12 when engaged with the frame 11. The sides 14 preferably extend orthogonally from the outer most edges of the base plate 13.

Figure 3B illustrates sides 14 of the frame 11. The frame 11 may be easily raised or lowered as desired.

The portal 10 including frame 11 and cover 12 may be made of any firm and/or rigid material including metals, plastics, wood or the like. It will, however, be appreciated that the choice of material used to form the portal 10 may be dictated by the use of a particular portal 10. For example, a portal 10 for use as a manhole portal 10 is preferably made from steel. Steel is of sufficient rigidity to withstand heavy vehicles passing over the portal 10 without substantially damaging the portal 10 or components thereof.



As mentioned above, the portal 10 may be provided in any size depending on a particular application for the portal 10. For example, a portal which is to be used as an access portal for a fire hydrant or power cables may provide a frame 11 of about 40 cm x 15 cm. However, a portal 10 which is to be used as a manhole portal may provide a frame 11 of a size of about 1 meter in diameter.

The frame 11 may also include a means for securing the frame to the mounting surface. The particular means provided will depend on the use for a specific portal. For example, the frame 11 could have rods which extend from beneath the frame 11 and which are adapted to pass through a concrete lid mounting surface (such as used over manhole shafts). The rods may have a screw thread which allows nuts or the like to engage with the thread on the rod to anchor the frame 11 to the concrete lid.

Alternatively, individual clamps could be provided which fasten the frame 11 to the mounting surface. The means of securing the frame 11 to the mounting surface should be sufficient to withstand the environment where the portal 10 is to be present. For example, the fastening means should withstand the vibrations and weight of traffic if the portal 10 is to be used as a manhole portal.

The invention also provides an improved method of raising a portal 10 when desired. For example, if a road surface is to be resealed, it may be desirable to raise the portal 10 to the substantially horizontal height of the resealed road surface.

The portal 10 may be secured to a mounting surface. If the portal 10 is to act as a manhole portal, the portal 10 may be secured to a substantially horizontal concrete top which covers a manhole shaft. The portal 10 includes a frame 11 and a cover 12. As a manhole portal, the frame 11 is of a size and diameter to allow access to an average size human. However, where the portal 10 is used to protect power cables or a fire hydrant, a smaller portal 10 may be desirable.

The frame 11 may be secured to a surface by adhesives, bolts or the like as described above. The frame 11 may be secured by the base plate 13 to the mounting surface. Preferably, the base plate 13 is fastened to the surface by an edge within the sides 14 of the frame 11. Once the frame 11 is secured to the concrete top, concrete, tar seal,

asphalt or the like may be spread around frame 11 so that the road surface is substantially aligned with the height of the sides 14 of the frame 11.

When a road is to be resealed, the frame 11 may be lifted by removing the bolts and/or dissolving the adhesive from the frame 11. The frame 11 may then be simply lifted or jemmied to a desired height. Jams and/or thin pieces of steel may then be fastened under the base plate 13 to retain the frame 11 at the desired height.

Since the sides 14 are substantially orthogonal and as the base plate 13 does not substantially extend outwardly beyond the sides 14, this means that the frame 11 may be lifted substantially without disturbance to the surface adjacent to the frame 11. In relation to manhole portals, such disturbance would normally involve grinding down the road surface to expose the base plate 13 before raising the height of the frame 11.

Thus, a portal 10 and/or a frame 11 of the present invention simplifies the cost and time involved in raising or replacing a portal 10. The difficulty associated with removing or grinding down the road surface around the portal 10 may be avoided.

The invention may also be provided as a kit of parts including at least the frame 11. However, preferably the kit of parts for the portal 10 may be provided with a cover 12.

Wherein the foregoing description reference has been made to specific components or integers of the invention having known equivalents, then such equivalents are herein incorporated as if individually set forth.

Although the invention has been described by way of example only and with reference to possible embodiments thereof, it is understood that modifications or improvements may be made thereto without departing from the scope of the invention.

**DERRICK ANTHONY RHODES**  
By His Attorneys  
**BALDWIN SHELSTON WATERS**

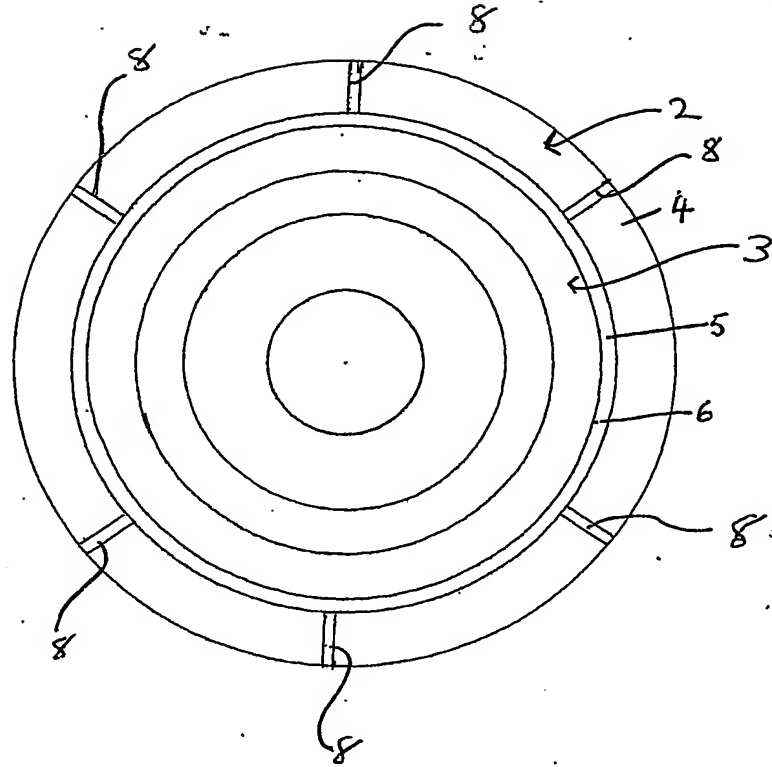
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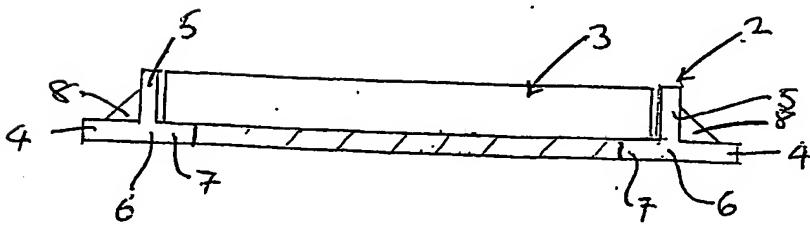
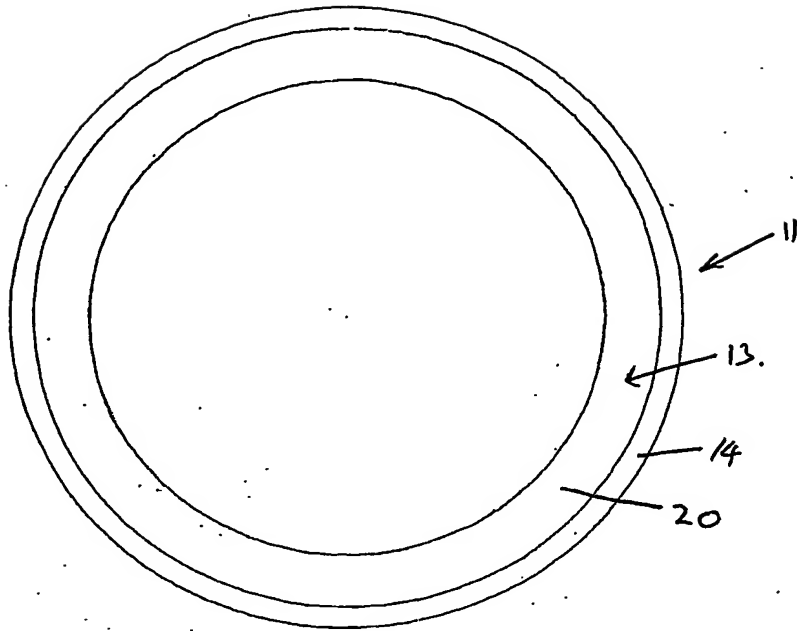


FIGURE 1

A



B

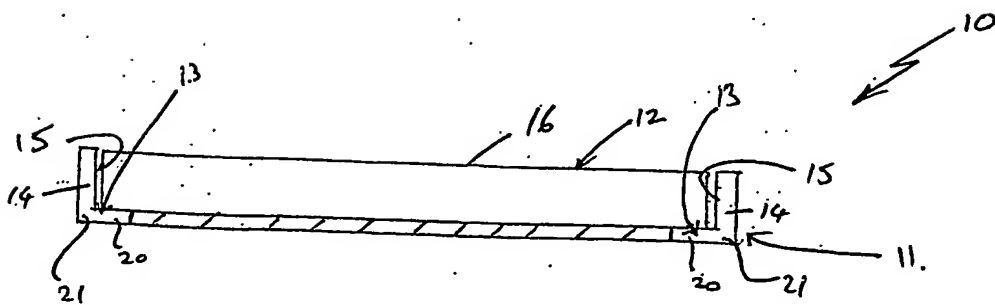
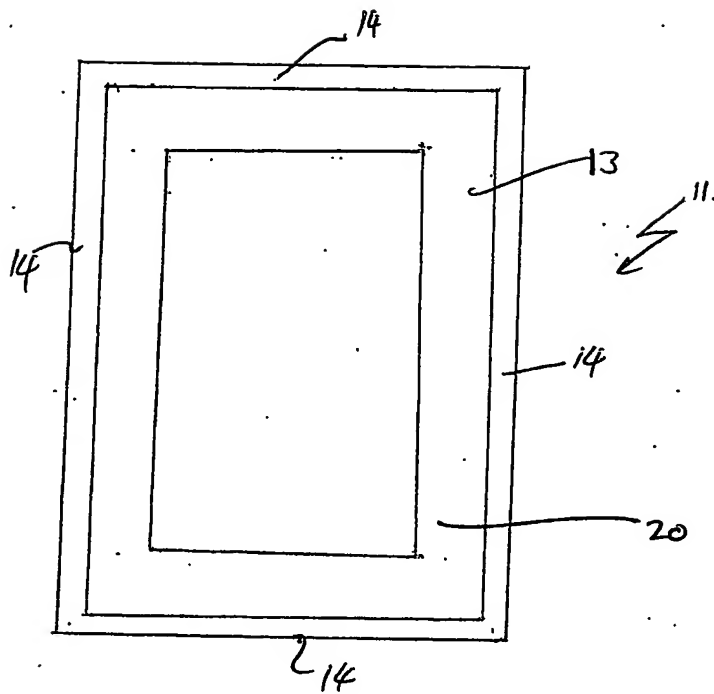


FIGURE 2

A



B

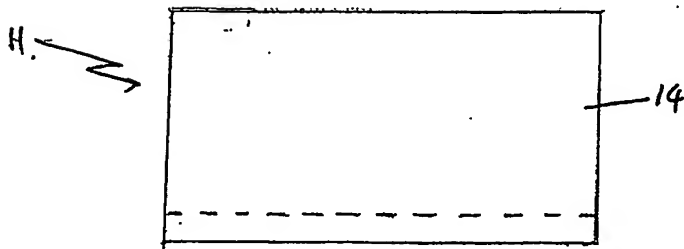


FIGURE 3